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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
WASHINGTON 25, D. C.

In cooperation with State, Federal and Other Agencies

COTTON INSECT CONDITIONS - MAY 18, 1951
(Second Cotton Insect Survey Report for 1951)

Although the past winter was more severe than the two previous winters, boll weevils probably survived in all counties where they were abundant in 1950. Surface trash examinations disclosed that living boll weevils survived the winter in Virginia, North Carolina, South Carolina, in the Tennessee Valley of northern Alabama, in northern Louisiana, and in eastern and northeastern Arkansas. Boll weevils have been found on seedling cotton as far north as Fannin County in northern Texas and in Smith, Anderson, and Henderson Counties in northeastern Texas.

As suggested in the First Cotton Insect Survey Report for 1951, issued on April 2, all cotton growers, who experienced losses from insects during any recent year and who have ever found the use of insecticides for cotton insect control on their farms profitable, should be prepared to fight insects in their cotton fields during 1951. Any farmer who is complacent about insect conditions on his farm because zero temperatures occurred during the past winter may regret his complacency if he does not have insecticides to control the insects when they occur in his cotton fields during June, July, and August.

Thrips and cutworms have probably been the most serious insect pests of cotton thus far this spring. Insecticides have been used for their control in many localities.

INSECTICIDES

Although there have been many rumors and reports concerning the short supplies of insecticides, and in some areas merchants and farmers have been unable to obtain insecticides that have been on order for several months, no case has been reported where satisfactory insecticides were not available when needed.

COTTON INSECT SURVEY REPORTS ISSUED BY STATES

Most of the leading cotton-growing States are issuing reports or releases relating to cotton insects and their control. These reports may be obtained from the State Experiment Stations, State Extension Services or State Plant Boards. Reports on cotton insects have been issued this spring in North Carolina, South Carolina, Mississippi, Louisiana, Arkansas, Texas, and probably other States.

BOLL WEEVIL

The reports from Texas indicate that there may be fewer boll weevils in that State during May than in any recent year. Most of the reports concerning boll weevil survival indicate that the weevils may be less abundant now than they were during May of 1949 and 1950 in the States east of Texas. However, if conditions are favorable for the weevils during the next eight weeks, they could become abundant and cause serious damage in all areas where they occurred last year.

Virginia: L. C. Fife of this Bureau with headquarters at the Pee Dee Experiment Station, Florence, S. C., reported on April 13 on the examination of 50 square yards of surface trash from 5 farms in 3 counties in southeastern Virginia. No boll weevils were found in the material examined from 4 farms in Nansomond and Southampton Counties, but on the farm examined in Greenville County weevils were found

at the rate of 1,452 per acre.

Unfortunately the surface trash samples taken in Virginia in April 1951 were wet due to recent rains. Usually live boll weevils are more readily found if the samples are taken when the surface trash is dry. Although the small number of samples examined and the fact that they were wet when taken may not have given an accurate picture of boll weevil conditions, enough live weevils were taken to show that the weevils have survived in sufficient numbers to cause serious damage in Virginia during 1951 if weather conditions are favorable for them during June and July. However, from the meager records available, it appears that the boll weevils are surviving in Virginia in small^{er} numbers than in the spring of 1950.

Average Number of Live Boll Weevils Per Acre
Found in Surface Trash in April

| <u>County</u> | <u>1950</u> | <u>1951</u> |
|---------------|-------------|-------------|
| Nansemond | 4,517 | -0- |
| Southampton | 6,776 | -0- |
| Greensville | 5,324 | 1,452 |

These records do not mean that boll weevils may not be abundant on many Virginia farms. Only 50 square yards of surface trash from 5 farms were examined and it was so wet that some live boll weevils may have been missed.

North Carolina: As reported in the First Cotton Insect Survey Report issued on April 2, surface trash examinations made during February 1951 disclosed the presence of living boll weevils in Cleveland, Hoke, Lee, Rowan, Sampson, and Scotland Counties in considerably smaller numbers than in 1950. In Robeson County boll weevils were found in larger numbers than in March 1950. Boll weevils were also found in Halifax, Nothampton, and Warren Counties in February 1951 where no surface trash examinations were made in 1950. Using all of the available county records boll weevils were found at the rate of 1,976 weevils per acre in North Carolina during February 1951 as compared with 6,748 weevils per acre in March 1950. The fact that living boll weevils were found at the rate of more than 4,000 per acre in Halifax and Scotland Counties and at the rate of 3,872 per acre in Hoke and Robeson Counties indicates that if conditions continue favorable for their survival, large numbers of weevils will survive and be found in the cotton fields during June.

South Carolina: The surface trash examinations indicate that there were fewer boll weevils in the spring of 1951 than in 1949 and 1950. Although many weevils died during the winter, investigations show that the weevils survived the winter in all of the 7 counties where surface trash examinations were made during March 1951 by L. C. Fife and his associates at Florence. J. G. Watts, Entomologist of the Edisto Experiment Station, reported that live weevils were found in Barnwell, Bamberg, and Hampton Counties. M. D. Farrar, Head of the Entomology Department at Clemson College, reported live boll weevils were found in surface trash examinations made in Anderson, Barnwell, and Oconee Counties. On April 9 Dr. Farrar issued a statement about boll weevil survival that included the following: "Trash collections examined show that boll weevils have survived in all sections of the State. Entomologists at the three stations predict about a normal emergence of adult weevils in all parts of the State. These weevils have survived even though the average temperature for South Carolina from November 1950 through March 1951 was lower than for the two previous winters and weather conditions throughout the winter were generally unfavorable for the survival of cotton insects. Weather in the Pee Dee areas was warmer, thus killing less hibernating weevils than in

other parts of the State."

Fall and Spring Surface Woods Trash Examinations for Live Hibernating Boll Weevils in Florence County, South Carolina, 1937-51

| | Boll Weevils | per Acre | of Surface Trash |
|---------|--------------|----------|------------------|
| Year | Fall | Spring | Percent Survival |
| 1937-38 | -- | 1472 | -- |
| 1938-39 | -- | 3582 | -- |
| 1939-40 | -- | 176 | -- |
| 1940-41 | -- | 1960 | -- |
| 1941-42 | -- | 1839 | -- |
| 1942-43 | 3936 | 2995 | 76.1 |
| 1943-44 | 2731 | 1210 | 44.3 |
| 1944-45 | 4324 | 2580 | 59.7 |
| 1945-46 | 4840 | 2193 | 45.3 |
| 1946-47 | -- | 2904 | -- |
| 1947-48 | 3974 | 2710 | 68.2 |
| 1948-49 | 3969 | 3969 | 100.0 |
| 1949-50 | 10744 | 11108 | 100.0 |
| 1950-51 | 4816 | 2267 | 47.1 |
| Average | 4920 | 2926 | 67.5 |

Surface trash examinations were made in 7 counties in South Carolina by the entomologists with headquarters at the Pee Dee Experiment Station. Summary of their surface trash examination as compared with examinations made in March 1950 is given in the following table:

| | : Number of Square Yards | : : Live Boll Weevils Per Acre in |
|------------|---------------------------|-----------------------------------|
| | : Examined | : : Surface Trash |
| County | : March-1950 : March-1951 | : : March-1950 : March-1951 |
| Clarendon | 40 40 | 3267 1331 |
| Darlington | 30 50 | 12100 2130 |
| Dorchester | -- 50 | -- 194 |
| Florence | 250 190 | 11108 2267 |
| Leurens | 60 50 | 11051 1645 |
| Orangeburg | 50 50 | 7841 290 |
| Sumter | 30 30 | 5969 2097 |

Boll weevils probably survived the winter in all South Carolina counties but early infestations may be spotted as no live weevils were found on 34 farms and in 5 counties where surface trash examinations were made. Additional trash examinations would undoubtedly disclose the presence of boll weevils in all counties and possibly on all farms. The results obtained in the 16 counties are given here:

Abbeville, Chester, Fairfield and Spartanburg Counties: No boll weevils were found in surface trash taken from 1 farm in each of these counties. (M. D. Farrar)

Aiken County: No live boll weevils were found in the examination of surface trash from 4 farms. (J. G. Watts)

Anderson County: No weevils were found on 1 farm but on 2 other farms examination of surface trash disclosed that live weevils were present at the rate of 484 weevils per acre and on another farm at the rate of 1,530 per acre. (M.D.Farrar)

Bamberg County: No weevils were found on 4 farms but on 1 farm they were found at the rate of 968 live weevils per acre. (J. G. Watts)

Barnwell County: Samples of surface trash were examined from 10 farms. No weevils were found on 8 farms but on the other 2 farms they were found at the rate of 1,530 and 9,680 live weevils per acre. (M. D. Farrar and J. G. Watts)

Clarendon County: On April 5 samples of surface trash were collected from 4 fields. Live boll weevils were collected on all 4 farms at the rate of 484, 968, 968, and 2,904 weevils per acre. The average for the county was 1,331 live weevils per acre as compared with 3,267 in 1950.

Darlington County: On March 1 samples of surface trash were taken on 5 farms. On 1 farm no live weevils were found but on the other farms they were found at the rate of 484, 1,936, 2,904 and 5,324. The average for the county was 2,130 live boll weevils per acre of surface trash as compared with 12,100 per acre in 1950.

Dorchester County: On March 8 samples of surface trash were taken from 5 farms. No weevils were found on 3 farms. On 2 farms they were found at the rate of 484 weevils per acre. The average for the county was 194 live weevils per acre.

Florence County: Between March 12 and 28 samples of surface trash were taken from 19 farms. No live boll weevils were found on 2 farms. On the other 17 farms weevils varied from 484 to 6,776 per acre. The average for the county was 2,267 live weevils per acre as compared with 11,108 in 1950.

Hampton County: No weevils were found on 2 farms but on 2 farms they were found at the rate of 3,536 live weevils per acre and on another farm at the rate of 968 weevils per acre. (J. G. Watts)

Laurens County: On March 6 samples of surface trash were taken from 5 farms. No weevils were found on 2 farms. On the other farms live weevils were found at the rate of 968, 1,452, and 5,808 per acre. The average for the county was 1,645 weevils per acre as compared with 3,776 in the spring of 1949 and 11,051 in the spring of 1950.

Oconee County: No weevils were found in the examination of surface trash on 1 farm but on another farm live weevils were found at the rate of 484 per acre. (M. D. Farrar)

Orangeburg County: On April 3 samples of surface trash were taken from 5 farms. No weevils were found on 2 farms and on the other 3 farms they were found at the rate of 484 per acre. The average for the county was 290 live weevils per acre as compared with 7,841 in 1950.

Sumter County: On March 29 samples of surface trash were taken from 3 farms. Live weevils were found on each farm at the rate of 1,452, 2,420, and 2,420 per acre. The average for the county was 2,097 weevils per acre as compared with 5,969 in 1950.

From Florence County L. C. Fife and associates reported on April 20:
One boll weevil on screen in a hibernation cage was the first active weevil noted in the cages this year.

April 27: One boll weevil caught on windshield of car. Two active weevils noted in hibernation cages as compared with one the previous week. In 1950, 165 weevils were active during this period; 77 in 1949 and 2 in 1948. No boll weevils yet taken in trap plot. During this period in 1950, 3 weevils were taken in the trap plot, 0 in 1949 and 7 in 1948.

May 4: No weevils emerged in hibernation cages. During this week in 1950, 179 boll weevils were removed from the hibernation cages; 221 in 1949, and only 1 in 1948. No boll weevils have as yet been taken in the trap plot. By this date in 1950 7 weevils had been taken, 45 in 1949, and 14 in 1948.

May 11: No boll weevils have emerged in the hibernation cages. At this date in 1950, 246 weevils had emerged and been removed from the cages; in 1949, 253 weevils had been removed, and in 1948 only 1 weevil had been removed. Only 1 weevil had thus far been taken in the trap plot while at this date in 1950, 9 weevils had been collected, in 1949, 132 weevils, and in 1948, 55 weevils. Dry weather has probably been an important factor in delaying the emergence of weevils from hibernation this year.

Georgia: Although no reports concerning boll weevil survival have been received, they probably survived the winter in all parts of the State as live weevils were found late in April in Madison and Marshall Counties in the Tennessee River Valley in northern Alabama, and in South Carolina live weevils were found in a dozen counties including Anderson, Barnwell, Hampton, and Oconee Counties adjacent to Georgia. In some fields in these South Carolina counties live weevils were found at the rate of 484, 968, 1,530, 3,536 and 9,680 per acre .

Alabama: Through the cooperation of W. A. Ruffin, Extension Entomologist, and the County Agricultural Agents in Madison and Marshall Counties, 100 square yards of surface trash were obtained from 10 fields in the Tennessee Valley in northern Alabama. In Madison County 60 square yards of surface trash were collected from 6 fields on April 24. No weevils were found in 4 of the fields but in the other 2 fields the weevils occurred at the rate of 484 per acre. The average for the county was 161 weevils per acre. In Marshall County 40 square yards of surface trash were collected from 4 fields on April 25. No weevils were found in 1 field, but in 1 of the other fields they were found at the rate of 968 per acre. The average for the 4 fields in the county was 484 live weevils per acre.

Concerning the Alabama surface trash examinations, L. C. Fife, Florence, S. C., wrote on April 30: "Live boll weevils were found at the rate of 161 per acre in Madison County and 484 weevils per acre in Marshall County. The average for the 2 counties was 322 live weevils per acre as compared with 1,422 weevils per acre in 7 counties in South Carolina, 1,976 weevils per acre in 11 counties of North Carolina, and 484 weevils per acre in 3 counties of Virginia."

Mississippi: In a Press Release from the State Plant Board dated May 14 Clay Lyle stated: "Examinations made by Board inspectors and Federal entomologists on 130 fields in 27 counties revealed only 4 fields infested with weevils. A field in Lamar County and another in Montgomery County each had 50 weevils per acre, one in Jones County 100 per acre, and one in Walthall County 500 per acre. In most sections of the State cotton is still in the two to three-leaf stage and too small to attract weevils. Farmers are advised not to become too optimistic because of

the few weevils now in the fields, for they will continue to come out of hibernation until in July."

Tennessee: Although no reports concerning boll weevil survival in Tennessee have been received, it is likely that the weevils survived on many farms where they occurred during 1950. Live boll weevils were found late in April in Madison and Marshall Counties in the Tennessee Valley of northern Alabama. Boll weevils were also found during April in several Arkansas counties directly west of Tennessee, including Craighead, Greene, Lawrence, Poinsett, and White Counties. The low winter temperatures probably reduced the boll weevil population in Tennessee more than during the 2 previous mild winters. According to the Bureau of Agricultural Economics the boll weevil caused a reduction from full yield in Tennessee of 13% of the cotton crop in 1949 and 19% in 1950. In only one previous year, 1923, when the weevil destroyed 21% of the Tennessee crop has it ever reduced the yield more than 9%.

Louisiana: In northeastern Louisiana near Tallulah, Madison Parish, this Bureau has a field laboratory for the study of cotton insects and their control. Among the investigations conducted at Tallulah is the determination each spring of the winter survival of the boll weevil. Studies made each fall furnish the average number of weevils per acre in the surface trash of woods adjacent to cotton fields. Similar studies made the following March give the average number of weevils per acre that survive the winter. During the fall of 1950 the examination of 200 samples of surface trash from woods near cotton fields indicated that the boll weevils had entered hibernation at the average rate of 4,586 weevils per acre of ground trash. This was the largest number of weevils to enter hibernation in the vicinity of Tallulah during any fall since these studies were started in 1936. In only 2 previous falls had weevils entered hibernation at the rate of more than 3,000 per acre. In 1945 the estimated number of weevils that entered hibernation was 4,199 per acre and in 1949 the average rate was 3,231 per acre.

Boll weevils survived the winter of 1950-51 in the vicinity of Tallulah in surprisingly large numbers considering the low temperatures that occurred at Tallulah during the past winter. This may be explained by the fact that when the lowest temperatures occurred there was a layer of 5 or 6 inches of sleet, snow and ice on the ground that protected the weevils on the surface of the soil. Examinations of 200 samples of ground trash that were completed on March 19 disclosed the presence of weevils at the rate of 1,742 per acre of surface trash. This is the largest number of weevils per acre ever found in the spring examinations at Tallulah, except in the spring of 1950 when they survived at the rate of 2,202 weevils per acre. Comparing the number of weevils that went into hibernation last fall with the number that survived, it is found that there was a survival of 38%. On a percentage basis the survival of boll weevils at Tallulah was higher in March 1951 than in any of the previous 14 years, except 1941, 1945, 1949 and 1950. The summary of ground trash examinations at Tallulah compiled by R. C. Gaines is as follows:

SUMMARY OF GROUND TRASH EXAMINATIONS,
TALLULAH, LOUISIANA, 1936-51

| Year | Live Weevils Per Acre of Ground Trash | | Spring Survival |
|---------|--|--------|--------------------|
| | Fall | Spring | Percent |
| 1935-36 | — | 141 | -- |
| 1936-37 | 2,118 | 50 | 2 |
| 1937-38 | 519 | 186 | 36 |
| 1938-39 | 1,284 | 226 | 18 |
| 1939-40 | 2,243 | 190 | 8 |
| 1940-41 | 721 | 920 | 100 |
| 1941-42 | 1,484 | 327 | 22 |
| 1942-43 | 2,916 | 750 | 26 |
| 1943-44 | 2,488 | 625 | 25 |
| 1944-45 | 2,435 | 1,512 | 62 |
| 1945-46 | 4,199 | 1,065 | 25 |
| 1946-47 | 2,698 | 426 | 16 |
| 1947-48 | 1,178 | 177 | 15 |
| 1948-49 | 2,146 | 1,710 | 80 |
| 1949-50 | 3,231 | 2,202 | 68 |
| 1950-51 | 4,586 | 1,742 | 38 |

Entomologists of the Louisiana Agricultural Experiment Station brought samples of surface trash to Tallulah from 5 parishes. Examinations were made jointly by the entomologists of the State Experiment Station and this Bureau with the following results:

SUMMARY OF ALL SURFACE TRASH EXAMINATIONS BY PARISHES IN
LOUISIANA, SPRING OF 1951

| Parish | Date Collected (1951) | Number of Samples | Live Weevils Per Acre |
|-----------|-----------------------------|-------------------------|-----------------------------|
| Bossier | March 6 | 20 | 242 |
| Caddo | March 6 | 10 | 726 |
| Claiborne | March 5 | 10 | 242 |
| Ouachita | March 7 | 30 | 323 |
| Richland | March 7 | 10 | 242 |
| Madison | Feb. 26 to March 15 | 200 | 1,742 |

Arkansas: Gordon Barnes, Extension Entomologist, Fayetteville, issued a letter on April 23 to Certain County Agents in Arkansas as follows: "Trash collections in Arkansas show that we have live weevils in the eastern Ozarks as far north as Imboden in Lawrence County, on Crowley's Ridge as far north as Paragould in Greene County, and in the delta as far north as Lepanto in Poinsett County. These counts should not be used as an indication of the weevil situation in individual counties. The sample was very small in each county and does not cover the county at all. There have been no previous counts made in Arkansas so there is nothing to use as a comparison as to just how many weevils we have. The counties further south will probably have more weevils than the northern counties even though the counts were higher in the northern counties. Most of the trash collections were made in fence rows grown up in trees and in woods very close to fields which were in

cotton last year. Collections were made where there was a covering of leaves. Spots where there was this type of covering were not easily found even in the wooded areas. Counts for individual counties were as follows:

| County | No. of Samples | Live Boll Weevils | |
|-----------|----------------|-------------------|-------------------|
| | | No. Found | Ave. No. Per Acre |
| Desha | 50 | 4 | 194 |
| Chicot | 30 | 3 | 242 |
| Jackson | 15 | 0 | 0 |
| Poinsett | 30 | 1 | 81 |
| White | 15 | 2 | 323 |
| Craighead | 20 | 2 | 242 |
| Greene | 20 | 1 | 121 |
| Lawrence | 20 | 3 | 363 |
| State | 200 | 16 | 196 " |

Arkansas Surface Trash Examinations Made at the Tallulah, La.
Field Laboratory in Late March and Early April 1951

Chicot County: Early in April 30 samples of surface trash were collected from 3 farms. Boll weevils were found on 2 of these farms. They occurred at an average rate of 242 weevils per acre.

Craighead County: On April 4, 20 samples of surface trash were collected from 4 farms. No weevils were found on 2 of the farms but on the other 2 they occurred at the rate of 464 weevils per acre. This makes the average 242 weevils per acre.

Desha County: Early in April 50 samples of surface trash were obtained from 5 farms in the southeastern section of the State. No weevils were found from the material collected on 2 of the farms, but the average for the 5 farms was 194 weevils per acre.

Greene County: On March 30, 20 samples of surface trash were collected from 5 farms. No boll weevils were found from the material taken from 3 farms, but on the other farm the weevils occurred at the rate of 484 weevils per acre. This made the average 121 weevils per acre.

Jackson County: Fifteen samples of surface trash were collected from 3 fields on March 30. No boll weevils were found in any of these samples.

Lawrence County: Late in March the County Agent at Walnut Ridge, in the north-eastern section of the State, submitted 20 samples of surface ground trash collected from 4 farms. No weevils were found in the material collected on 2 farms and live weevils were found to occur at the rate of 484 and 968 weevils per acre on the other 2 farms. This makes an average for the county of 363 weevils per acre.

Poinsett County: Thirty samples of surface trash were collected from 6 farms. No weevils were found in the material collected on 5 farms but on 1 farm the weevils occurred at the rate of 484 per acre. This makes the average 81 weevils per acre.

White County: Fifteen samples of surface trash were collected from 3 farms on April 4. No weevils were found in the material from 2 farms, but on the other farms they occurred at the rate of 968 weevils per acre. This made the average 323 weevils per acre.

Missouri: Although no reports concerning the boll weevil have been received this spring, it is quite likely that careful search will disclose their presence during June and July in Butler, Dunklin, Howell, Oregon, Ripley, and other counties in southeastern Missouri. In April weevils were found to have survived the winter in Greene, Lawrence, Craighead and Poinsett Counties in northeastern Arkansas, a few miles west and south of Missouri.

Oklahoma: No reports of boll weevils have yet been received from Oklahoma but they have been reported as occurring in the cotton fields of Fannin County, Texas, immediately adjacent to southern Oklahoma.

Texas: K. P. Ewing, Waco, wrote on May 14: "Boll weevils have now been found on seedling cotton plants as far north as Fannin County and in Smith, Anderson, and Henderson Counties in East Texas. However, it will probably be several weeks before most of the overwintered weevils have emerged into cotton fields in these areas. Because of the early and thorough destruction of cotton stalks during the summer and fall of 1950, boll weevils are not nearly so plentiful in southern and Coastal Bend Counties this year as they were at this time last year. However, reports have been received of two fields of fruiting cotton in Starr County having 20 and 50% square infestations."

THE COTTON SITUATION IN TEXAS

On May 7 K. P. Ewing, Waco, reported light to medium infestations of thrips, aphids, cotton fleahoppers, cutworms, bollworms, and grasshoppers in numerous counties as far north as McLennan, Falls, Cherokee, and Smith Counties. Concerning conditions in Texas he reported: "In most areas of the State continued cold weather has delayed growth of woods, legumes and row crops that usually serve as early hosts of thrips and from which thrips migrate to cotton. For this reason, in southern areas thrips have been about two weeks later transferring to cotton this year than during the past two years. This late transfer or migration may continue up the State. Farmers are encouraged to inspect their cotton as it comes out of the ground and if thrips, cutworms or other insects are present in injurious numbers apply poisons immediately, as recommended in the 1951 Guide for Controlling Cotton Insects. Every effort should be made to save the stand and prevent early damage from insects. Unless emergency applications are needed to save the stand, the regular early-season control program should not be started until cotton reaches at least the 4-leaf stage.

"Some insecticides are still in short supply. Growers who are not able to get delivery now on their preferred insecticide should take a second choice rather than take a chance on not having it on hand when needed.

"Bollworms are giving trouble on fruiting cotton plants in scattered fields as far north as Bee County. One report from Bee County showed 40 bollworm larvae and 60 bollworm eggs per 100 plants. Where such heavy damaging infestations occur, insecticides should be applied to save the fruit and the terminal buds. Apparently bollworms are migrating to cotton earlier and in larger numbers than usual this year in southern areas where freezes and droughty conditions destroyed or retarded the growth of preferred hosts such as certain vegetables, grains, legumes, and weeds."

COTTON INSECTS IN THE LOWER RIO GRANDE VALLEY OF TEXAS

Beginning on March 16 A. N. White, Associate County Agent and Associate Entomologist, P. O. Box 476, Weslaco, Texas, has issued at weekly intervals reports on cotton insect conditions. Report No. 9 was issued on May 10. These reports are prepared through the cooperation of several agencies concerned with cotton insects and their control in the Lower Rio Grande Valley. They contain valuable information regarding the abundance, distribution, damage, and control of thrips, aphids cotton fleahopper, cutworms, bollworms, spider mites, boll weevil, and other pests of cotton in Cameron, Hidalgo, Starr, and Willacy Counties.

The first boll weevil reported in the Valley in 1951 was on cotton near Mission on April 17. Weevils were noted in a few fields during the week ending April 26. The early thorough cleanup of cotton fields in August 1950 probably accounts for the light boll weevil infestations during April and May 1951 in the Lower Rio Grande Valley. The reports indicate that through May 10 the boll weevil has caused less damage to cotton than thrips, cutworms, and bollworms and probably less than aphids, spider mites, Lygus bugs, cotton fleahoppers, and darkling beetles.

Thrips attacked early cotton as soon as it was up in nearly every section of the Valley but especially in the vicinity of cabbage, broccoli, and other vegetable fields. They were reported as the most serious pests of cotton on March 16 and March 22. By March 29 rains had helped greatly in holding down the thrip damage but they were noted in 63 of the 111 fields examined. By April 5 conditions were again favorable for the thrips and they were causing much damage to cotton. They continued through May 3 to cause serious damage to many fields of young cotton where insecticides had not been used.

Cutworms had reduced the stands in many cotton fields as early as March 16. On March 29 they were reported as causing more damage to cotton than any of the other cotton insects. On April 12 cutworms were damaging young cotton in many fields and even some of the older cotton by climbing the stalks, cutting the stems and ragging the leaves. Cutworms have caused more damage to cotton than for several years and each week through May 3 were reported as causing serious damage to young and old cotton plants, particularly where cotton was planted in citrus groves or on old vegetable land.

Darkling beetles were reported damaging cotton as early as March 16, especially in the Mission-Edinburgh area, and this damage to small cotton was reported as late as April 26.

The false chinch bug was reported on April 26 as causing severe damage to young cotton in Hidalgo County.

Aphids and spider mites were in a few cotton fields on March 29 and April 5. On April 12 they were causing damage in some fields. Aphids were noted in many cotton fields throughout the Valley each week through May 10. Spider mites were damaging cotton near Le Fenia and Mission.

Bollworms, Lygus bugs, and the cotton fleahoppers were reported in a few cotton fields on April 12. Since then bollworms have been the most serious of the cotton pests and were reported each week, including May 3, as damaging the terminals and young squares and also feeding on the cotton leaves. Lygus bugs and cotton fleahoppers have continued to increase in damaging numbers each week.

MISCELLANEOUS COTTON INSECTS

South Carolina: W. J. Reid, Jr., of the Division of Truck Crop and Garden Insect Investigations, reported cutworms causing serious damage to cotton in the Charleston area during the week ending April 28.

Mississippi: Clay Lyle, State College, reported on May 14: "Several complaints have poured in during the past week that beetles were eating the cotton leaves and cutting off the stalks. Examinations of specimens from Scott, Leake, Neshoba, Montgomery, and Webster Counties revealed that this was the vegetable weevil, a destructive garden pest. Dusting or spraying with toxaphene, aldrin, or any other recommended cotton poison was suggested." He states that "The damage would soon stop as the weevils become inactive with hot weather and do not feed during the summer."

During the week ending May 4, 52 cotton fields were examined in 10 Delta counties. Aphids were recorded in 13 fields and thrips damage in 17 fields. Reports were also received that cutworms are destroying cotton stands in some places. During the week ending May 11 aphids were noted in 48, thrips damage in 30, and cutworms in 3 of the 72 cotton fields examined in 13 Delta Counties.

Among the many insects from cotton that were not included in survey reports last year were the flower thrips, Frankliniella tritici (Fitch) and the tobacco thrips, F. fusca (Hinds) taken from cotton at Stoneville on June 7, 1950 by W. L. Lowry.

Louisiana: During May 1950, several collections of aphids and thrips were made from cotton at Tallulah, that were not included in any of the survey reports last year. The thrips were determined as the tobacco thrips, Frankliniella fusca (Hinds). Most of the aphids were determined as the cotton aphid, Aphis gossypii Glov., but the collections included the cowpea aphid, Aphis modicaginis Koch., the green peach aphid, Myzus persicae (Sulz.), and the potato aphid, Macrosiphum solanifolii (Ashm.)

Arkansas: Cutworms were reported on cotton in Lafayette County. (Gordon Barnes, Extension Entomologist, May 7)

Texas: The cotton aphid, Aphis gossypii Glov., was submitted from Falls and McLennan Counties on April 18 and 19.

THRIPS

Texas: A. N. White, Associate County Agent, Lower Rio Grande Valley, wrote on March 20: "Early examinations and survey reports over the entire Valley indicate that thrips are present in some degree in every section. The weather for the past ten days has been relatively cool, including a frost March 13 with a low of 29°s here in the Weslaco area. This has stunted the cotton ingeneral and caused much of it to be replanted. This has also been ideal for the development of thrips."

IRRIGATED COTTON OF THE SOUTHWEST

Arizona: On April 27 W. A. Stevenson reported concerning cotton insect conditions in the Salt River Valley as follows: "Injurious insect populations on cotton continued low in all fields observed during the week. In most of the planted cotton fields an occasional beet armyworm was seen. A few darkling ground beetles were observed in some of the fields. Spider mites were observed in a field of

stub cotton 10 miles southeast of Mesa. A few of the earlier planted cotton fields in scattered areas have been dusted recently with DDT, mainly as a preventive measure for beet armyworms and darkling ground beetles." The injurious hemipterous insects that attack cotton are apparently less abundant than a year ago. No collection has yet been made on cotton but the collections made on alfalfa, grains, and weeds indicate that Lygus spp. are as usual the most abundant of the sucking bugs. However, small numbers of stink bugs belonging to the family Pentatomidae have been collected, including Thyanta custator from alfalfa, grains, and weeds, and Euschistus impictiventris and Chlorochroa sayi from alfalfa.

In the Santa Cruz Valley Mr. Stevenson reports Lygus spp. on alfalfa and darkling ground beetles in some cotton fields.

On May 4 W. A. Stevenson reported: "A few of the cotton farmers in the Deer Valley area have started to dust and are planning on dusting considerable acreage with 10% DDT plus sulfur mainly for the control of thrips. Ground dusters will be used for this application. Injurious insect populations on cotton as a whole were low, although a few thrips were observed in most of the cotton fields examined, also an occasional beet armyworm. Darkling ground beetles were found to be damaging seedling cotton plants in some of the fields in the Gilbert area. These fields may have to be dusted with DDT for their control. Cutworms in the Tolle-son area have destroyed over 100 acres of cotton. In addition to this acreage, quite a few other cotton fields in the same vicinity have spotted infestations of these caterpillars. Some poison apple bait is being used for their control. In Graham County aphids are also a problem and are causing some damage to the seedling plants in a number of fields. Replanting has been necessary in a number of fields in this county."

California: Gordon L. Smith and Tom Heffernan submitted on April 15 their observations on spider mites and cotton as follows: "Pacific Mite: In the West Fresno County where the Pacific mite was a pest of cotton in the 1949 and 1950 seasons, this same species has now built up high populations on vetch. The vetch receiving the least irrigation has the higher populations. Some few well irrigated rank growths of vetch are relatively free of mites. Where the high populations occur, many mites have been carried by winds aided by the equipment turning under this cover crop, to adjacent fields, where it has been found on young seed alfalfa, young cotton, grain and weeds. It is surviving and reproducing on these host plants. The weed hosts found to have the greatest number of mites on them are Filaree, Malva parviflora ("cheese weed" or "button weed"), alkali mallow Sida hederacea, "Wild lettuce", "prickly lettuce" and others of the genus Lactuca, "Sow thistle" and others of the genus conchus."

"Killing the weeds with weed killers will do far more in killing mites than will cultivation equipment."

"Two-spotted Mites: In Tulare and Kern Counties where the two-spotted mite was a pest of cotton in 1950, it was frequently found the infested cotton was near fields of corn. The mites remained on the corn until the corn stalks were destroyed. The mites were thrown into the winds by the cutting of corn stalks and carried into cotton fields."

"The two-spotted mite is now found breeding up on Malva parviflora, "Cheese weed" or "button weed", Johnson grass, burr clover, sunflower, wild lettuce, Lactuca Sp., sow thistle Senhus sp."

"Killing the weed hosts with chemical weed killers will help to control these mites far more than weed killing by cultivation. This control should be immediately emphasized, especially in these specific areas where the two-spotted mite has been a pest of cotton and other crops."

COTTON PESTS FROM VALLES, SAN LUIS POTOSI, MEXICO

Cotton is now grown extensively in the vicinity of Valles in the State of San Luis Potosi, Mexico, several hundred miles south of the Rio Grande River. Among the specimens collected from cotton near Valles by C. A. Richmond between March 17 and 25, 1951, there were two lots of the spider mite, Septanychus toxazona McG., 3 specimens of the bollworm, Holiothis armigera (Hbn.), and one specimen of the tobacco budworm, H. virescens (Fabr.). Among the specimens collected on cotton in the same locality on March 26 by A. J. Chapman there were one lot of Septanychus toxazona McG., 6 specimens of the bollworm, H. armigera (Hbn.), and one of the tobacco budworm, H. virescens (F.). In addition there were 5 specimens of Dysdercus obliquus (H.-S.) of the family Pyrrhocoridae, and one specimen each of the Lygaeus roclivatus Say of the family Lygaeidae and Arhyssus parvicornis (Sign.) of the family Coreidae. On April 12 Mr. Chapman found additional fields infested with S. toxazona McG., the cotton aphid, Aphis gossypii, the bollworm, H. armigera (Hbn.) and larvae belonging to the family Geometridae.

COTTON AND COTTONSEED PRODUCTION, 1950

Most entomologists in the cotton-growing States probably noted with special interest the 6-page statement on Cotton Production that was released on May 8, 1951, by the Crop Reporting Board, Bureau of Agricultural Economics, U.S.D.A. The statement concerning boll weevils is: "Boll weevil infestation in 1949 was relatively high, and the number of weevils entering hibernation in late fall of that year was considerably above average. The winter of 1949-50 was very mild, and the number of boll weevils emerging in the spring of 1950 was at a high level in all areas, and at record levels in eastern cotton States. Intensive and widespread poisoning was begun earlier than ever. During July frequent rains and below-average temperatures, especially during the latter half of the month, hindered the application of poisons in most States. In some areas the supply of insecticides was inadequate. In weevil-infested States showery weather continued in most areas through August and September, while below-average temperatures prevailed. The maturity of the crop was delayed and heavy weevil damage continued. Damage to grown bolls was excessive in many areas.

"According to reports of crop correspondents, the reduction from a full yield from all causes in the 13 Cotton Belt States was 44.1 percent. Reduction caused by boll weevils alone was reported at 22.6 percent. With the exception of 1921 and 1922, this was the highest percentage loss ever caused by boll weevils. In Virginia, North Carolina, and Arkansas, weevil damage was the worst on record, and severe damage was reported in other eastern and central States."

ESTIMATED PERCENT REDUCTION FROM FULL YIELD OF COTTON CAUSED BY THE BOLL WEEVIL, OTHER INSECTS, AND ALL INSECTS IN THE 13 LEADING COTTON-GROWING STATES WHERE THE BOLL WEEVIL OCCURS IN 1948, 1949, AND 1950. (FROM REPORTS OF THE CROP REPORTING BOARD OF THE BUREAU OF AGRICULTURAL ECONOMICS, U.S.D.A.)

| State | Boll Weevil | | | Other Insects | | | All Insects | | |
|-------------------|-------------|-------|------|---------------|-------|------|-------------|-------|------|
| | 1948: | 1949: | 1950 | 1948: | 1949: | 1950 | 1948: | 1949: | 1950 |
| Missouri | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 2 | 2 |
| Virginia | 2 | 23 | 63 | 0 | 2 | 1 | 2 | 25 | 64 |
| North Carolina | 6 | 27 | 54 | 1 | 1 | 2 | 7 | 28 | 56 |
| South Carolina | 8 | 29 | 31 | 1 | 2 | 3 | 9 | 31 | 34 |
| Georgia | 13 | 35 | 25 | 2 | 2 | 4 | 15 | 37 | 29 |
| Florida | 7 | 18 | 22 | 1 | 2 | 3 | 8 | 20 | 25 |
| Tennessee | 1 | 13 | 19 | 1 | 0 | 2 | 2 | 13 | 21 |
| Alabama | 7 | 31 | 33 | 1 | 1 | 2 | 8 | 32 | 35 |
| Mississippi | 4 | 27 | 23 | 0 | 1 | 2 | 4 | 28 | 25 |
| Arkansas | 4 | 25 | 26 | 1 | 1 | 3 | 5 | 26 | 29 |
| Louisiana | 3 | 15 | 27 | 1 | 1 | 3 | 4 | 16 | 30 |
| Oklahoma | 10 | 8 | 29 | 2 | 2 | 12 | 12 | 10 | 41 |
| Texas | 4 | 3 | 12 | 3 | 3 | 7 | 7 | 6 | 19 |
| Average 13 States | 5 | 17.5 | 22.6 | 1.6 | 1.7 | 4.3 | 6.6 | 19.2 | 26.9 |

ESTIMATED REDUCTION FROM FULL YIELD OF COTTON CAUSED BY INSECTS IN THE WESTERN IRRIGATED AREA IN 1948, 1949 AND 1950. (FROM REPORTS OF THE CROP REPORTING BOARD OF THE BUREAU OF AGRICULTURAL ECONOMICS, U.S.D.A.)

| State | Sucking Bugs | | | Other Insects | | | All Insects | | |
|--------------------------|--------------|-------|------|---------------|-------|------|-------------|-------|------|
| | 1948: | 1949: | 1950 | 1948: | 1949: | 1950 | 1948: | 1949: | 1950 |
| Texas (Trans-Pecos Area) | 2 | 2 | 3 | 2 | 4 | 4 | 4 | 6 | 7 |
| New Mexico | 1 | 1 | 2 | 3 | 4 | 3 | 4 | 5 | 5 |
| Arizona | 2 | 3 | 1 | 1 | 1 | 1 | 3 | 4 | 2 |
| California | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 3 | 2 |

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